

Applicant : Nobuo Imamura et al.
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Attorney's Docket No.: 15682-017US1 / OSP-19442

Amendments to the Drawings:

The attached replacement sheet of drawings includes changes to Fig. 4 and replaces the original sheet including Fig. 3 & 4.

In Figure 4, the reference "62(65)" (two occurrences) has been changed to "62" and "65."

Attachments following last page of this Amendment:

Replacement Sheet (1 page)
Annotated Sheet Showing Change(s) (1 pages)

REMARKS

Claims 1, 2 and 4-6 are pending.

Claims 1, 2 have been amended to clarify their subject matter and to incorporate subject matter that previously was recited in claim 3, which is being canceled. Claim 4 has been amended to clarify its subject matter. Claims 5 and 6 are new. Support for new claim 5 can be found, for example, on page 9, line 25 to page 10, line 3 and in FIG. 1. Support for new claim 6 can be found, for example, on page 8, lines 9 to 12 and in FIGS. 4 and 5.

No new matter has been added.

Claim Rejections – 35 U.S.C. §112

Claim 1 was rejected under 35 U.S.C. §112, second paragraph as being indefinite.

The Office action states that the preamble of claim 1 indicates the claim is directed to a method but that the body of the claim fails to positively recite any method steps, thus making the scope of the claim unclear. Applicants have amended claim 1 to positively recite method steps (e.g., “providing . . .” and “directing . . .”).

Applicants respectfully request withdrawal of this claim rejection.

Claim 4 was rejected under 35 U.S.C. §112, second paragraph as being indefinite.

The Office action alleges that the scope of claim 4 is unclear because the structure of the machining hole is not clearly defined in such a way as to provide structure to the nozzle. *See* Office Action ¶5.

Applicants have amended claim 4 so that it defines more clearly the structure of the nozzle. Claim 4, as amended, makes clear that the machined hole includes threads and that the nozzle has structure which results in a spiral air flow turning in a loosening direction relative to the threads.

Applicants respectfully submit that claim 4 satisfies the requirements of §112, second paragraph and request withdrawal of this claim rejection.

Claim Rejections – 35 U.S.C. §102(b)

Claims 2 and 4 were rejected under 35 U.S.C. §102(b) as anticipated by Japanese Patent Publication No. 2002/361192 (hereinafter JP '192).

Claim 2, as amended, recites a chip removal air blow nozzle with a spiral flow creating section having a plurality of guide pieces formed at a distal end portion of the nozzle that are twisted into a screw shape. An example of those features is shown in FIGs. 4 and 5 of the present application, where chip removal air blow nozzle 1 includes a spiral flow creating section 60 with guide pieces 61 that are formed at a distal end portion 1b of the nozzle 1 and are twisted into a screw shape. In some implementations, the claimed subject matter provides a nozzle having a relatively narrow distal end portion that can conveniently fit into correspondingly narrow machined holes to effectively remove chips and debris therefrom.

As explained below, JP '192 does not disclose or render obvious the claimed subject matter.

JP '192 discloses an air nozzle 1 with jet holes 2 formed in a distal end of the nozzle 1. Each jet hole 2 is angled (*see* Drawing 4) and delivers air generally towards a bottom of the opening (*see* Drawing 6) into the opening in a curled form. *See* ¶ [0022] of the JP '192 computer translation. The air nozzle 1 can be used to deliver air into an opening in a work piece 10 in a curled form. *See* ¶[0022] of the JP '192 computer translation.

The Office action alleges that the portions of the JP '192 nozzle 1 that surround each jet hole 2 correspond to the claimed “guide pieces” and that those portions are “twisted into a screw shape” as recited in claim 2. *See* Office action ¶ 10, p. 6. Applicants respectfully disagree.

The Office action seems to allege that because the JP '192 jet holes 2 are inclined relative to the longitudinal axis of the nozzle, they (and the portions of nozzle 1 that surround them) are, therefore, “screw shaped.” That is not correct. The JP '192 jet holes 2 clearly are straight. This is clear, for example, from Drawing 4 of JP '192. A straight hole that is merely inclined relative to an axis is not screw shaped. Accordingly, the JP '192 jet holes are not screw shaped and the portions of nozzle 1 that surround the JP '192 jet holes are not twisted in a screw shape, as recited in claim 2.

Moreover, even if the jet holes 2 were somehow considered “screw shaped,” the portions of the nozzle that surround each jet hole 2 certainly are not “twisted into a screw shape,” as recited in claim 2. Indeed, the portions of nozzle that surround the jet holes 2 are not twisted in any manner. Moreover, they certainly are not twisted into a screw shape, as recited in claim 2.

In some implementations, by providing an air blow nozzle with a spiral flow creating section that has guide pieces at a distal end portion that are twisted into a screw shape, a very narrow distal end can be formed. In those implementations, the subject matter of claim 2 advantageously enables removing debris from relatively narrow machined holes. In contrast, the inclination of jet holes 2 relative to the longitudinal axis of the JP ‘192’s nozzle may limit how narrow a nozzle can be while still being able to deliver air in a manner that effectively removes debris from a machined hole.

Claim 2 should be allowable for at least the foregoing reasons.

Claim 4 depends from claim 2 and, therefore, should be allowable for at least the same reasons as claim 2.

New claims 5 and 6 also depend from claim 2 and, therefore, should be allowable for at least the same reasons as claim 2.

Claim 1 also was rejected under 35 U.S.C. §102(b) as being anticipated by JP ‘192.

Claim 1, as amended, recites: (1) providing an air blow nozzle with a spiral flow creating portion in a distal end portion thereof, wherein the spiral flow creating portion has a plurality of guide pieces that are twisted into a screw shape to change air flow therein into a spiral flow; and (2) directing air that is jetted out of the nozzle against a bottom portion of a machined hole.

As discussed above, JP ‘192 neither discloses nor renders obvious a chip removal air blow nozzle with a spiral flow creating section having a plurality of guide pieces formed at a distal end portion of the nozzle that are twisted into a screw shape. Therefore, JP ‘192 also does

not disclose or render obvious a method that includes providing such an air blow nozzle and directing air that is jetted out of the nozzle against a bottom portion of a machined hole.

Claim 1 should be allowable for at least the foregoing reasons.

Drawings

The Examiner objected to the drawings because of the reference "62(65)" in FIG. 4. Without conceding that the Examiner's interpretation of reference "62(65)" is correct, applicants have modified FIG. 4 to remove the reference "62(65)." FIG 4 now includes separate reference numbers "62" and "65". A replacement sheet and an annotated sheet showing the changes to FIG. 4 are attached.

Applicants respectfully request withdrawal of these drawing objections.

Specification

The Examiner objected to the disclosure because of a comma should be inserted in certain specified places on page 5. Applicants have inserted commas in the specified places and respectfully request withdrawal of this objection.

The Examiner also objected to the disclosure because reference letter "L" should be inserted after the word "length" in line 12 on page 8. Applicants have inserted reference letter "L" where indicated and respectfully request withdrawal of this objection.

Conclusion

It is believed that all of the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue or comment does not signify agreement with or concession of that rejection, issue or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this

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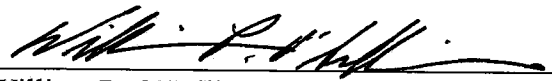
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paper, and the amendment of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment.

No fee is believed to be due. Please apply any charges or credits to deposit account 06-1050.

Respectfully submitted,

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FIG. 3

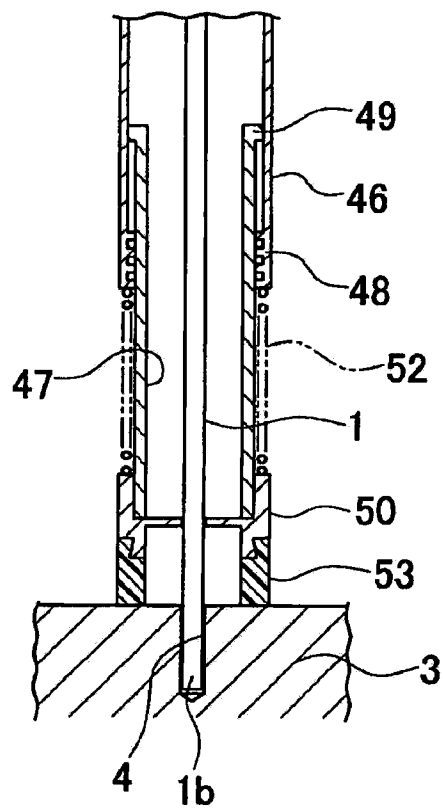


FIG. 4

